Amendments to the Claims

Please amend the claims as follows:

1. (Canceled) A fiber optic communication system, comprising:

multiple channels, at least one of said channels having a variable bandwidth.

2. (Canceled) The system of Claim 1, wherein said bandwidth is varied by using a tunable filter.

3. (Canceled) The system of Claim 2, wherein said tunable filter is an acousto-optic tunable filter.

4. (Canceled) A fiber optic communication system, comprising:

multiple channels, wherein the bit rates of one or more of said channels are dynamically tunable.

5. (Canceled) The system of Claim 4, wherein said channels are tuned using tunable filters.

6. (Canceled) The system of Claim 5, wherein said tunable filters are acousto-optic tunable filters.

7. (Canceled) A fiber optic communication system, comprising:

multiple emitters operably connected to couple signals into a transmission medium;

multiple modulators operably connected to modulate data onto one or more of said signals;

multiple tunable passband filters operably connected to filter one or more of said signals by selectively tuning passbands of said filters.

8. (Canceled)

9. (Canceled)

10. (Canceled) A method of operating an optical communication system, said system having multiple channels, comprising the step of:

dynamically tuning the spectrum widths of said channels.

11. (Canceled) The method of Claim 10, wherein said spectrum widths are tuned using tunable filters.

12. (Canceled)

13. (Canceled)

14. (Canceled) A method of allocating bandwidth on an optical communication system, comprising the steps of:

modulating data onto one or more carrier signals to produce one or more modulated signals, each of said modulated signals having spectrum width;

allocating bandwidth to said modulated signals according to the spectrum width of said modulated signals.

15. (Canceled) The method of Claim 14, wherein said bandwidth is allocated by tuning tunable filters.

16. (Previously Presented) A method of operating an optical communication system, comprising:

increasing a spectrum width of a first optical channel space by at least an amount equal to a spectrum width of a second optical channel space to create a new optical channel space;

wherein the new optical channel space has a spectrum width at least equal to a sum of the spectrum width of the first optical channel space and the spectrum width of the second optical channel space; and

communicating a signal over the new optical channel space at a bit rate requiring the spectrum width of the new optical channel space.

17. (Previously Presented) The method of Claim 16, wherein increasing a spectrum width of a first optical channel space comprises tuning a filter associated with the first optical channel space to a wider passband.

18. (Previously Presented) The method of Claim 16, further comprising deactivating a transponder associated with the second optical channel space.

19. (Previously Presented) A fiber optic communication system, comprising:

a first optical channel space having a first spectrum width;

a second optical channel space adjacent to the first optical channel space, the second optical channel space having a second spectrum width;

a tunable filter operable to increase the second spectrum width of the second optical channel space by at least an amount equal to the first spectrum width to create a new optical channel space having a third spectrum width, the new optical channel space operable to carry a signal at a bit rate requiring the third spectrum width.

20. (Previously Presented) A method of operating an optical communication system, comprising:

dividing a first spectrum width of a first optical channel space to create a second optical channel space having a second spectrum width and a third optical channel space having a third spectrum width;

wherein a sum of the second spectrum width and the third spectrum width is equal to or less than the first spectrum width;

communicating a signal over the second optical channel space at a bit rate requiring a spectrum width equal to or less than the second spectrum width; and

communicating a signal over the third optical channel space at a bit rate requiring a spectrum width equal to or less than the third spectrum width.

21. (Previously Presented) The method of Claim 20, wherein dividing a first spectrum width of a first optical channel space comprises tuning a filter of the first optical channel space to a narrower passband.

22. (Previously Presented) A fiber optic communication system, comprising:

a first optical channel space having a first spectrum width;

a tunable filter operable to divide the first spectrum width of the first optical channel space to create a second optical channel space having a second spectrum width and a third optical channel space adjacent to the second optical channel space, the third optical channel space having a third spectrum width; and

wherein a sum of the second spectrum width and the third spectrum width is equal to or less than the first spectrum width.

23. (Previously Presented) A fiber optic communication system, comprising:

a plurality of emitters, each emitter operable to communicate a signal over a respective initial channel, wherein each initial channel has a respective initial spectrum width;

a plurality of modulators, each modulator coupled to at least one of the plurality of emitters, wherein each modulator is operable to modulate data onto a signal; and

a plurality of passband filters, each filter coupled to at least one of the plurality of emitters, wherein each filter is operable to vary the initial spectrum width of at least one of the initial channels to form at least one new channel that utilizes a channel spacing of at least one of the initial channels, wherein the at least one new channel has a respective new spectrum width.

24. (New) The method of Claim 16, wherein the first optical channel space is adjacent the second optical channel space, and wherein the new optical channel space comprises the first optical channel space and the second optical channel space.

25. (New) The system of Claim 19, further comprising a transponder associated with the first optical channel space, the transponder configured to be deactivated when the new optical channel space is created.

26. (New) The system of Claim 19, wherein the first optical channel space is adjacent the second optical channel space, and wherein the new optical channel space comprises the first optical channel space and the second optical channel space.

27. (New) The method of Claim 20, wherein the second optical channel space is adjacent the third optical channel space, and wherein the second optical channel space and the third optical channel space collectively comprise the first optical channel space.

28. (New) The method of Claim 20, further comprising activating a transponder associated with the second optical channel space and a transponder associated with the third optical channel space when the new channel space is created.

29. (New) The system of Claim 22, wherein the second optical channel space and the third optical channel space collectively comprise the first optical channel space.

30. (New) The system of Claim 22, further comprising a transponder associated with the second optical channel space and a transponder associated with the third optical channel space, the transponders configured to be activated when the new optical channel space is created.